Prostate MRI With Recall System For Contrast: Effect On Efficiency And Cost Savings

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Disclosure

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During the COVID-19 pandemic

- Prostate MRI scans had to be limited to urgent cases only
- Most exams were deferred
- This exacerbated an already existing backlog of referrals with a waitlist of one year.

A bi-parametric protocol without gadolinium was, therefore, implemented to maximize the use of resources

- Recall system was established for gadolinium, if necessary.
THE AIM OF THIS QUALITY IMPROVEMENT PROJECT WAS TO REVIEW THE EFFICACY OF THIS RECALL SYSTEM.
METHODS

- Bi-parametric prostate MRI protocol was instituted July 27, 2020, for all patients excluding those with post-treatment prostate cancer.
  - Those with post-treatment prostate cancer.
  - Patients with hip prosthesis (suboptimal DWI).
  - Patients with pacemaker (logistical challenges)
  - Those who lived out-of-town (difficult to recall).
  - These patients had full multi-parametric MRI with gadolinium as per PI-RADS v 2.1.

- Bi-parametric protocol only eliminated the post Gad sequence and consisted of
  - T2-weighted images in 3 planes,
  - DWI sequences with low and intermediate b-values (to generate ADC map), and high b-value (1500); in accordance with PI-RADS v 2.1.

- After interpretation of bi-parametric study, patients with a PI-RADS 3 lesion in peripheral zone (PZ) or suboptimal DWI scan were recalled for contrast.
RESULTS

• Out of 909 patients, only 52 (5.7%) were recalled
  • 11 (21.2%) were recalled owing to suboptimal DWI
  • Rest of 41 (78.8%) cases were PZ PI-RADS 3 lesions.

• On assessment of post-gadolinium imaging
  • 29 (55.8%) were upgraded to PI-RADS 4
  • 17 (32.7%) remained PI-RADS 3.

• This protocol avoided gadolinium in 857 pts, saving $68,560 in contrast costs.

• 6min time saved per patient – saving a total of $291,380 in contrast & time costs.
Advantages for patients

- Avoid the inherent risks of contrast
- Can be scheduled out of hours at times when
  - There is limited technologists on shift and limited availability of IV therapy services, if the technologist is not able to start the IV line.
  - Physicians were not readily available to supervise injection, thereby decreasing waiting times.
- By November 2020, the waiting time of 1 year had decreased to 2-3 weeks.
CONCLUSIONS

- Bi-parametric MRI prostate with a robust recall system for contrast not only eliminated the marked backlog that was aggravated during the pandemic but was also cost-effective without compromising quality of patient care.
RECOMMENDATION

Once experience with multi-parametric MRI has been achieved, bi-parametric MRI with a robust recall protocol should be considered in other centers that have a similar backlog of exams and want to increase their efficiency & cost-effectiveness.